

Expression of Interest



UNIVERSITAT POLITÈCNICA DE VALÈNCIA

Contact Person/Scientist in Charge

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Universitat Politècnica de València (UPV)

Department / Institute / Centre

- **Name:** Research Center on Software Production Methods (PROS) - Universitat Politècnica de València
- **Address:** Campus de Vera; Camino de Vera, s/n; Valencia (46022)
- **Province:** Valencia

Research Area

- Information Science and Engineering (ENG)

Brief description of the institution:

Universitat Politècnica de València (UPV) is the single Spanish Technical University that features in the main University world rankings. It is within the top 5 Spanish Universities with the highest revenue from both public research and knowledge transfer activities, and a national leader in patent license income and start up creation. Constituted in 1971, it comprises nearly 30.000 students, over 2500 academics, and 17 university research centres of excellence.

UPV has a relevant experience in the participation in international research programmes, with over 100 FP7 projects and 40 H2020 projects in the period 2014-2015. UPV researchers are also actively involved all H2020 life program stages, from workprogramme drafting discussions, to project coordination. It is also taking part in several major partnering initiatives (JTIs, PPPs, KICs...).

Brief description of the Centre/Research Group (including URL if applicable):

Universitat Politècnica de València (UPV) www.upv.es is the single Spanish Technical University that features in the main University world rankings. It is within the top 5 Spanish Universities with the highest revenue from both public research and knowledge transfer activities, and a national leader in patent license income and start up creation.

PROS Research Centre www.pros.upv.es (Research Centre on Software Production Methods), is a Research Institute from the UPV created in 2008 by lecturers and researchers with more than 25 years of research experience. At PROS Centre more than 50 researchers work in the study and creation of new processes, methods and strategies in order to support the software production process from a rigorous, reliable and industrial-oriented perspective.

The PROS research areas are: Software Testing and Quality, Model-driven development (MDD) and automatic code generation, Human-computer Interaction, Method Engineering, Organizational Modelling and Requirements Engineering, , Ambient Intelligence and Genomic Information Systems.

PROS major equipment for research experimentation include:

- Computation cluster for automatic software testing
- Cyber-physical Laboratory: Smart Devices to develop and prototype Smart Cities/Buildings
- Autonomic Laboratory: Smart Devices to develop and prototype highly dynamic scenarios, including Autonomous Vehicles (drones)
- Genomic databases server

Project description:

A Conceptual Model-driven Method for Big Data applications

The term Big Data is increasingly present in the development of software applications and services on different application areas such as health or digital economy. The term is usually associated to technological concerns, related with solutions that manage and physically store big volumes of data. This interpretation has caused a proliferation of isolated Big Data technological solutions, generating a huge data chaos. However, a high quality technological infrastructure is not enough if it lacks the suitable mechanisms to organize and extract value from the stored data.

This project focuses on analysing, formalizing and solving conceptual and methodological challenges that arise while developing applications and services based on Big Data in industrial environments. Starting from an ontology that describes this domain without ambiguities and applying conceptual model-driven software development (MDSD) principles, we propose a conceptual model-driven method for developing Big Data applications. The goal is defining precise and rigorous conceptual models that drive the development of Big

Data applications and services in order to provide business value. This way, we introduce the enterprise perspective without focusing on technological parameters of performance and scalability.

As a proof of industrial application, we will apply this method in the development of a Big Data application for the management of genomic data in several organizations of the field.

Applications

Curriculum vitae and motivation (before end of June)